UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

SINGULAR COMPUTING LLC,
 	
      Plaintiff,
 	
v.
 	
GOOGLE LLC,
 	
      Defendant.
	Civil Action No. 1:19-cv-12551-FDS
	
	REDACTED VERSION
	
	Hon. F. Dennis Saylor IV

PLAINTIFF'S REPLY IN SUPPORT OF
MOTION TO COMPEL INSPECTION, TESTING, AND SOURCE CODE
OF THE ACCUSED PRODUCTS

Paul J. Hayes (BBO #227000)
Matthew D. Vella (BBO #660171)
Kevin Gannon (BBO #640931)
Daniel McGonagle (BBO #690084)
Michael J. Ercolini (pro hac vice)
Thomas R. Fulford (BBO #686160)
Alyssa H. Ruderman (pro hac vice)
PRINCE LOBEL TYE LLP
One International Place, Suite 3700
Boston, MA 02110
Tel: (617) 456-8000
Email: phayes@princelobel.com
Email: mvella@princelobel.com
Email: kgannon@princelobel.com
Email: dmcgonagle@princelobel.com
Email: mercolini@princelobel.com
Email: tfulford@princelobel.com
Email: aruderman@princelobel.com

ATTORNEYS FOR THE PLAINTIFF

Plaintiff, Singular Computing LLC ("Singular"), respectfully submits this Reply in support of its motion to compel the inspection and testing of the accused TPUv2 and v3 processing boards (Dkt. No. 263). Defendant, Google LLC ("Google"), has opposed (Dkt. No. 294). For the reasons set forth below and in Singular's opening brief ("Open. Br."), Singular submits that this motion should be granted.

I.   INTRODUCTION

In the present motion, Singular requests that the Court order Google to allow Singular to inspect a Google data center in which the accused TPU products are installed and in day-to-day operation. As explained in Singular's opening brief, this is necessary because the TPUs are not sold by Google and are only used with specific servers in Google's data centers. *See* Open. Br. at 3-4. Thus, it is not possible for Singular to inspect the accused TPUs in operation by Google anywhere but in a Google data center.

Google's primary response is self-contradictory. Google repeatedly asserts that the data centers are highly secretive and access is limited to only a few trusted Google employees. *See* Opp. Br. at 3 ("Google's security measures include multiple, layered safeguards spanning from alarms to biometric access points to laser-based intrusion detection.") But, at the same time, Google incongruously states that "[t]he server racks are not labeled, and an observer would not be able to determine whether the racks contain TPUs or other hardware." *Id.* Google cannot be allowed to have it both ways. Singular's expert is well capable of observing the racks and determining which racks house the accused TPUs. Google's self-contradictory argument should be rejected.[1]

---

[1] Any confidential information that may be revealed during the inspection can be designated as such by Google pursuant to the Protective Order entered in this case. *See, e.g., Fort James Corp. v. J.H. McNairn, Ltd.*, No. 1:04cv3000, 2005 WL 8154755, at *2 (N.D. Ga. Oct. 3, 2005).

Google also opposes producing source code that indisputably relates to the operation of the accused TPU devices. Google's objections should be rejected. Pursuant to Local Rule 16.6(d)(4), Google was required to produce the source code that allows Singular to determine how the accused products operate. Google made a good deal of that source code available to Singular. However, as set forth on pages 9-10 of Singular's opening brief, the existence of additional code has now come to light via recent depositions of Google engineers. *See infra*. That missing/withheld code should now likewise be produced.

II.   LEGAL STANDARDS

Pursuant to Fed. R. Civ. P. 26(b)(1), discovery should be permitted for any information that "appears reasonably calculated to lead to the discovery of admissible evidence." This rule is to be construed liberally in favor of discovery. *Hickman v. Taylor*, 329 U.S. 495, 507 (1947). This applies equally in patent cases. *See*, *e.g.*, *Koninklijke Philips Elecs. N.V. v. ZOLL Med. Corp.*, No. 10-11041, 2013 WL 1833010, at *1 (D. Mass. Apr. 30, 2013).

Courts recognize the essential nature of testing and inspection of the accused products in patent cases. *Henrob Ltd. v. Böllhoff Systemtechnick GmbH & Co.*, No. 05-cv-73214, 2007 WL 2572028, at *2 (E.D. Mich. Sept. 5, 2007). Also, source code is relevant, and therefore discoverable, when it provides some of the accused functionality. *Negotiated Data Sol's LLC v. Dell, Inc.*, 2009 WL 733876, at *3 (N.D. Cal. Mar. 17, 2009); *see also Bigband Networks, Inc. v. Imagine Comm's, Inc.*, No. 07-351, 2010 WL 2898288, at * (D. Del. Jul. 20, 2010) (source code discoverable "because it is reasonably likely to lead to evidence relevant to [plaintiff's] infringement claims").

III. ARGUMENT

A. Inspection of a Data Center

Google argues at length that Singular did not comply strictly with the requirements of

Rule 34 in requesting an inspection of a data center. Opp. Br. at 7-10. But, with respect to

inspections, Rule 34 only requires that the requesting party "specify a reasonable time, place, and

manner for inspection and for performing the related acts." *See* Fed. R. Civ. P. 34(b)(1)(B). Well

before the end of fact discovery on July 23, 2021, Singular made the following request to Google

in February 2021:

> [W]e would like to make arrangements for counsel an [Singular's expert] to insect
> a Google data center with the accused TPUv2 and TPUv3 Devices installed and
> working. We would prefer to inspect a data center in or near Massachusetts.

See Ex. B.[2] Thus, the only item not addressed in this request was a time for the inspection that

Singular requested Google to provide (Google never did).

Counsel for Google clearly understood Singular's request to inspect. In a responsive

letter, counsel for Google wrote, *inter alia*, as follows stating a plethora of objections to

Singular's request:

> You also ask Google to arrange for "counsel and Dr. Reda to inspect a Google data
> center." Inspecting a data center has no relevance to this case. As we have told
> you previously, you will not be able to see functioning TPU boards, let alone assess
> their functionality, by visiting a data center.
>
> * * *
>
> There is no aspect of the infringement allegations that could be proven by viewing
> server racks operating in a data center. Accordingly, an inspection of a Google data
> center would serve no purpose. . . . [T]here is no data center in Massachusetts – or
> the northeastern United States – with "TPUv2 and TPUv3 installed and working."

---

[2] Singular Exhibits A-E are attached to the Declaration of Daniel McGonagle (Dkt. No. 264) that
was filed with Singular's opening brief (Dkt. No. 263). Exhibits F-Q are attached to the
Declaration of Kevin Gannon filed herewith.

See Google Sealed Ex. 2.

Singular repeated its request to inspect in a later email, specifying that it would like the inspection to take place early during the week of July 19, 2021:

> Singular would also like to inspect and photograph a Google data center with the accused TPUv2 and TPUv3 Devices installed and working sometime early next week. Please provide us with appropriate dates and locations.

See Google Ex. 3, p. 2. Once again, Google objected to the request. *See id.* at p. 1. Nowhere in any of these two sets of objections to Singular's requests did Google assert that Singular had not followed Rule 34. To the contrary, counsel for Google completely understood the requests as a Rule 34 request to inspect and protected Google's interests by lodging a myriad objections thereto. Google has maintained and reasserted those numerous objections in its opposition to this motion. *See* Opp. Br. at 11-15. More particularly, Google asserts here that the request to inspect is "duplicative, burdensome, and unlikely to lead to relevant information." *See* Opp. Br. at 11.

"[I]nspections are not an extraordinary means of discovery in patent cases." *Cuno Inc. v. Pall Corp.*, 116 F.R.D. 279, 281 (E.D.N.Y. 1987). Accordingly, Google's objections should be overruled: *First*, the request to inspect cannot be "duplicative". Duplication would require that Singular already conducted an inspection of a data center. Singular has never inspected a Google data center in this case. Thus, the request is not duplicative. Likewise, contrary to Google's argument (Opp. Br. at 14), the request is not "cumulative" because Singular has not been allowed to perform the requested inspection. Google also argues that its production of samples of the accused products is sufficient. *See id.*[3] That argument makes no sense. Google's production of

---

[3] Google objected to producing the sample boards and only provided them to Singular after the Court granted Singular's motion to compel same.

samples of the accused TPU devices is not evidence of how the accused products are installed and operated in a data center by Google. The jury should be allowed to understand and observe how the accused products are put to their infringing use by Google.

Second, for a company the size of Google, the request to inspect is not "burdensome" or "highly intrusive." As to burden, Google's parent (Alphabet, Inc.) reported revenues of more than $182 billion for the year ended December 31, 2020. *See* Ex. F. Thus, allowing access to a single data center for a couple of hours will not cause any undue burden to Google. Google also argues that "[l]ess than one percent of Google's employees will ever gain access to Google's data centers because of the potential security risks." Opp. Br. at 14. Google has over 135,000 employees. *See* Ex. G, pp. 2-3. One percent of that number is 1,350 employees who may have access to the data centers. Allowing two additional persons (Singular's expert and attorney) access cannot possibly be burdensome to Google.

As to intrusiveness, Google simply needs to allow Singular's expert (Dr. Reda), accompanied by one of Singular's attorneys, access to one of Google's data centers in the United States[4] for a couple of hours. Google does not need to cease, or even interrupt, operation of the designated data center during this inspection. Moreover, Google's arguments regarding the proprietary information in the data centers (Opp. Br. at 14) is unfounded. Singular's expert and counsel are bound by the terms of the Protective Order not to disclose any confidential information such as, according to Google, may be gleaned during the inspection. *Cf. Fort James v. McNairn*, 2005 WL 8154755, at *2 (any concern regarding confidential information that may be disclosed during an inspection is addressed by protective order).

---

[4] According to its website (www.google.com/about/datacenters/locations/), Google operates data centers in 14 locations across the United States.

Third, Rule 26 must be "construed broadly to encompass any matter that bears on, or that reasonably could lead to other matters that could bear on, any issue that is or may be in the case. *Oppenheimer Fund, Inc. v. Sanders*, 437 U.S. 340, 351 (1978); *see also Rockstar Consort. US LP v. Google Inc.*, No. 14-91322-FDS, 2015 WL 5972422, at *4 (D. Mass. Oct. 14, 2015). Accordingly, "relevancy must [also] be broadly construed at the discovery stage such that information is discoverable if there is any possibility it might be relevant to the subject matter of the action." *Cherkaoui v. City of Quincy*, No. 14-10571, 2015 WL 4504937, at *1 (D. Mass. Jul. 23, 2015) (citation omitted).

Contrary to Google's argument, the information that will be obtained through the inspection is relevant to the three main issues in the case: (1) infringement; (2) validity, and (3) damages. It relates to infringement because the devices that Singular requests to inspect as installed and operating in the data center are the TPU v2 and TPU v3 devices that are specifically accused of infringing the three patents-in-suit. *See*, *e.g.*, Amended Complaint (Dkt. No. 37), ¶¶ 81-132. Hence, courts routinely allow inspection of the accused products in patent cases. *See*, *e.g.*, *Stamps.com v. Endicia, Inc.*, No. CV 06-7499, 2008 WL 11338240, at *2 (C.D. Cal. Oct. 6, 2008) (inspections may often be the "most efficient and accurate method for determining whether the patented technology" has been infringed); *see also Kimberly-Clark Worldwide, Inc. v .First Quality Baby Prods., LLC*, No. 09-cv-0916, 2010 WL 2990753, at *3 (E.D. Wis. July, 2010).

As to validity, Google asserts that the patents-in-suit are invalid for obviousness. *See* Answer to Amended Complaint (Dkt. No. 53) at p. 23. To rebut this allegation, Singular will, *inter alia*, offer evidence regarding the commercial success of the patented invention, as demonstrated by Google's pervasive and widespread installation and use of the infringing TPU

devices in Google's massive[5] data centers. As the Federal Circuit recently reiterated, such

commercial success is evidence of nonobviousness that "must be considered" in the obviousness

inquiry. *See, e.g.*, *Chemours Co. FC, LLC v. Daikin Indus., Ltd.*, 4 F.4th 1370, __, 2021 WL

3085514, at *5 (Fed. Cir. 2021).

As to damages, Singular asserts that, by installing the accused TPU v2 and TPU v3

devices throughout its existing network of data centers, Google saved billions of dollars by not

having to build additional data centers (each of which costs around $1.25 billion to build). *See*

Amended Complaint, ¶ 24. The jury should be allowed to observe the enormity of the scale of

the data centers and the quantity of accused infringing TPU v2 and TPU v3 devices that Google

has installed therein. Such evidence of ongoing use of the infringing products is directly relevant

and will be helpful to the jury in assessing Singular's claim for damages. *See*, *e.g.*, *Lucent*

Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1333-34 (Fed. Cir. 2009) ("Consideration of

evidence of usage after infringement started can, under appropriate circumstances, be helpful to

the jury and the court in assessing whether a royalty is reasonable").

B.   Access to TPU Services via Cloud TPU Account

In accordance with its prior agreement, Google should also be ordered to provide

Singular access to TPU services via a Cloud TPU account with sufficient credentials to conduct

its tests of the accused TPU products. Notwithstanding its prior agreement to provide such

access, Google now argues that Singular's request is "(1) improper under Rule 34, (2) untimely,

and (3) vague and overly broad." *See* Opp. Br. at 15. Given its prior agreement to provide such

access, Google's arguments are completely meritless.

_____

[5] On its website, Google states that "Google data centers work globally and at massive scale."
See Ex. H, p. 2.

As stated above, Singular was previously forced to file a motion (granted by the Court) to compel Google to produce samples of the accused TPUv2 and TPU v3 processing boards. *See* Dkt. No. 96. In its opposition to that motion to compel, Google stated that it had offered to provide Singular access to TPU services via a Cloud TPU account. *See* Dkt. No. 104 at 8 (Google "offered to provide Singular access to TPU services via a Cloud TPU account"). Google represented to the Court that "[t]his account would allow Singular's counsel sufficient 'inspection' rights for the purpose Singular has articulated: running its numerical simulations on the accused products." *See id.* In its Reply brief for that motion, and again at the January 19, 2021 hearing, Singular specifically accepted Google's offer. *See* Dkt. No. 107 at 3 (Singular "accepts Google's offer to allow Singular to test the accused products using the Google Cloud"); Dkt. No. 131 at p. 21 ("They offered for us to allow to test the product, right, in vis-à-vis the cloud portal or whatever. And we in the brief accepted that"). Given this agreement, Google's argument here that Singular's request for access is somehow improper, untimely and vague/overly broad must be rejected. Google should not be permitted to renege on its agreement.

Further to the agreement reached, on February 19, 2021 (more than five months before the close of fact discovery on July 23, 2021), Singular requested access to Google's working TPU's via a Cloud TPU account. *See*, Ex. B. Counsel for Google responded on March 1, 2021, explaining that no special arrangements were necessary and inviting Singular "to sign up for a Cloud TPU account per the instructions available at https://cloud.google.com/tpu/docs/setup-gcp-account." *See* Ex. I, p. 1. When Singular attempted to access the Google Cloud TPU account, however, the system would not provide the quota of services necessary to allow

Singular to conduct its tests. *See* Ex. J. As a result, Singular informed Google that Singular

needed additional access beyond what was commercially available to run its tests. *See id*.

Google responded on July 19, 2021, incorrectly claiming that "Singular previously

rejected Google's compromise offer of access to a Cloud TPU account." *See* Ex. K. Singular

responded the next day by providing Google with proof that Google had, in fact, accepted

Google's offer and informing Google that Singular intended to raise the issue with the Court. *See*

Ex. L. (Singular "accepts Google's offer to allow Singular to test the accused products using the

Google Cloud").

After receiving no response from Google, Singular timely filed this motion to compel on

July 23, 2021, in compliance with the Court's Scheduling Order that required such motions be

filed no later than the close of fact discovery. *See* Dkt. No. 70. Accordingly, for the reasons set

forth above and in Singular's opening brief, Google should be ordered to provide Singular with

proper credentials to allow Singular conduct its tests of the accused products using the Google

Cloud TPU account as previously agreed upon between the parties.

C.   Missing/Withheld Source Code

Singular requests the Court to compel Google to produce: (1) the remaining

missing/withheld source code that relates to the design and operation of the Accused Products;

(2) the missing/withheld source code about which Jeff Dean testified in July; and (3) the source

code in Boston (Google has repeatedly refused), rather than San Francisco. As explained in

detail below, Google's own witnesses have repeatedly referred to this missing/withheld source

code.[6] Thus, contrary to Google's argument, there is no dispute that it exists. Yet, Google has

stubbornly refused to make this missing/withheld source code available for Singular's review.

Singular and its expert (Dr. Sunil Khatri) have now journeyed across the country to San

Francisco twice to review and analyze source code used in the operation of the accused TPU

devices. On both occasions, Singular identified gaps in the code made available by Google.

Singular noted that the source code made available during the review referred to <u>other</u> source

code that is clearly relevant to the case, but has not been made available and/or has otherwise

been withheld by Google. *See* Exs. M, N. On both occasions, Google resisted producing the

missing source code and only belatedly (after Singular and Dr. Khatri had left San Francisco)

agreed to make some of it available on the source code computer back in San Francisco.

During the latest trip from Boston to San Francisco to review source code, Singular

identified two tranches of re   quested source code that Google has yet to make available. As to

the first tranche, Singular pointed out that Google had failed to make available the source code

that defined the "█████████████████████" variable. *See* Ex. M. This missing/withheld

source code corresponds to a key aspect of the operation and design of the accused products.

Indeed, Google's designated 30(b)(6) witness on the design of the Accused Products, Norman

Jouppi, explicitly identified this exact code and its relevance to the accused products at his

deposition in this case. *See* Ex. O at 66:24-67:3, 80:8-19, 81:17-82:3.

As to the second tranche, Google has failed to produce source code referenced in the

deposition of Jeff Dean, who is key to the design of the accused TPU devices. Dean testified

about source code for a project that involved ███████████████████████████

---

[6] Google's own counsel conceded that the source code is the best indicator for how the accused
products operate. *See* Ex. C, p. 35 ("[T]he blueprints for how these chips are built is the system
Verilog code.").

██████ *See* Ex. P at 110-112. Thus far, Google has produced only "████████" relating to this

source code. A "████████" however, only represents an isolated set of changes made to an

existing body of source code and, by definition, does not include the source code in its entirety.

Google's repeated failure to produce this missing/withheld source code is indicative of

Google's misunderstanding of its discovery obligations. Pursuant to Local Rule 16.6(d)(4)(A)

Google was (and is) obligated to provide "documents sufficient to show the composition,

operation, construction, and performance" of the Accused Products, and such documents

explicitly include "source code." Moreover, Google has represented to this Court that source

code is the <u>only</u> type of documentation that is able to accurately describe the operation of the

Accused Products. *See* Ex. Q at 35:2-24.

Singular's request is not overbroad, nor is it a fishing expedition. It is merely an attempt

to gain access to the very source code that Google's witnesses are hiding behind. Accordingly,

Singular asks that the Court compel Google to make available the source code referenced above

— all of which relates directly to the accused products — <u>in its entirety</u>, and to make this source

code available in Boston. That way, any future deficiencies in Google's source code production

can be identified without requiring Singular and Dr. Khatri to travel thousands of miles in a third

trip to the West Coast. Given that this code is directly relevant to this matter, Singular

respectfully requests that this Court compel its production.

III.   CONCLUSION

For the reasons set forth above, Singular requests that this motion be granted.

Dated: August 13, 2021   Respectfully submitted,

                                          /s/ Paul J. Hayes
                                          Paul J. Hayes (BBO #227000)
                                          Matthew D. Vella (BBO #660171)
                                          Kevin Gannon (BBO #640931)
                                          Daniel McGonagle (BBO #690084)
                                          Michael J. Ercolini (pro hac vice)
                                          Thomas R. Fulford (BBO #686160)
                                          Alyssa H. Ruderman (pro hac vice)
                                          PRINCE LOBEL TYE LLP
                                          One International Place, Suite 3700
                                          Boston, MA 02110
                                          Tel: (617) 456-8000
                                          Email: phayes@princelobel.com
                                          Email: mvella@princelobel.com
                                          Email: kgannon@princelobel.com
                                          Email: dmcgonagle@princelobel.com
                                          Email: mercolini@princelobel.com
                                          Email: tfulford@princelobel.com
                                          Email: aruderman@princelobel.com

                                          ATTORNEYS FOR THE PLAINTIFF

CERTIFICATE OF SERVICE

        I certify that on August 13, 2021, I served this document on Defendant by causing a copy
to be sent via electronic mail to its counsel of record.

                                          /s/ Paul J. Hayes

12